

## AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listing of claims in the application.

### Listing of Claims:

1-3. *(Canceled)*

4. *(Previously Presented)* The method of claim 30, wherein said extruder is a twin screw extruder.

5. *(Previously Presented)* The method of claim 30, wherein the temperature of the polymer in the extrusion die is achieved by heating the extrusion die externally.

6. *(Previously Presented)* The method of claim 30, wherein the temperature of the polymer in the extrusion die is achieved by the induction of heat from the interior of the extrusion die.

7. *(Canceled)*

8. *(Previously Presented)* The method of claim 30, wherein the temperature (°C) of the polymer in the extrusion die is not higher than 60% above the crosslinking temperature (°C) of the polymer.

9. *(Previously Presented)* The method of claim 30, wherein the temperature (°C) of the polymer before entering the extrusion die is not higher than 30% above the crystallite melting point (°C) of the polymer.

10. *(Previously Presented)* The method of claim 30, wherein the crosslinking temperature (°C) of the polymer is approximately 30% above the crystallite melting point (°C) of the polymer.

11. *(Previously Presented)* The method of claim 30, wherein the crystallite melting point of the polymer is approximately 125-140° C.

12. *(Previously Presented)* The method of claim 30, wherein the crosslinking temperature of the polymer is approximately 165-185° C.

13. *(Canceled)*

14. *(Canceled)*

15. *(Previously Presented)* The method of claim 30, wherein the tube is maintained at a temperature above the crosslinking temperature after discharge from the extrusion die.

16. *(Previously Presented)* The method of claim 30, wherein the tube is cooled after crosslinking.

17-29. *(Canceled)*

30. *(Currently Amended)* A method for extruding a peroxide crosslinked polymer tube, comprising:

supplying a mixture to a screw [[an]] extruder, the mixture comprising: a crosslinkable polymer, a crosslinking agent, and a stabilizing agent, wherein the polymer has a crystallite melting point and a crosslinking temperature;

heating the mixture in the screw extruder with an external heating unit to a temperature above the crystallite melting point but below the crosslinking temperature;

controlling the temperature of the mixture in the screw extruder with the external heating unit and an internal cooling unit;

continuously feeding the mixture from the screw extruder to an extrusion die, wherein a melting pressure before entry to the extrusion die is approximately 700-1500 bar;

heating the mixture in the extrusion die above the crosslinking temperature to effect at least a partial crosslinking of the polymer in the extrusion die, wherein the temperature (°C) of the mixture in the extrusion die is at least 15% above the crosslinking temperature (°C); and

discharging the mixture from the extrusion die, wherein the degree of crosslinking of the polymer on discharge from the extrusion die is above 60%.

31. **(Previously Presented)** The method of claim 30, wherein the crosslinking agent comprises organic peroxide.

32. **(Previously Presented)** The method of claim 30, wherein the melting pressure before entry to the extrusion die is approximately 1200 bar.